# Challenges in the Successful Research Management of a Collaborative EU Project

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**Original paper**
SUMMARY
**Introduction:** Successful research management requirements include; equal teamwork and efficient coordination, in order to increase the impact of the research outcomes and provide added value knowledge. **Aim of this paper** is to discuss the strategies that have been followed during the RN4CAST study, the largest nursing multi-country research project ever conducted in Europe. The paper focuses on the core research strategies rather than on the administrative activities, which are inevitably also required for the success of a large scale research. **Results and discussion:** This paper is an extension of a conference presentation in the International Conference of the European Federation for Medical Informatics (MIE) 2011 in Oslo, and was subsequently published in the Studies in Health Technology and Informatics book series (IOS Press) under the title "Research management: the case of RN4CAST." Management of a multi-country nursing survey requires the use of common data collection tools, applicable to every context, research protocols supporting the scope of the research, data models for multi-country analyses and global dissemination strategies. Challenges that may be faced during the implementation of the study include the individualized confrontation of obstacles during data collection, the coherence of national procedures (for example permissions for data collection) in European level, and the challenge to gain information of added value for the EU, by aggregating the national survey results through a powerful data analysis model. Communication strategies are also discussed.
**Keywords.** Research Management, Nursing, RN4CAST.

## 1. INTRODUCTION

Effective research management requires close collaboration of researchers, sometimes specialized in different scientific areas and residing in various locations. The methodological approach for the efficient management of research has been discussed during the last decades in many research papers (1, 2). Recently many authors define research management as opposed to the "research administration" which is a core centralized approach required to conduct a medical research (3). This new approach not only requires all partners' active participation, but also of communities, other interest groups, stakeholders and policymakers (4). There is an interconnection between research strategies and successful management and this link is very important since the achievements of a research can be proved to be the key of scientific research management (5). General management practices applicable in research management include the need for empowering partners and equally working together beyond institutional boundaries; communicating effectively with stakeholders for the development of new knowledge utilised through unique practices. Successful research management does not only imply project management in financial and administrative terms but also involves the core scientific research itself.

Nowadays research involves international collaboration; therefore resource mobilization and use of proper methods of dissemination to different stakeholders are key success factors. The success is also based on the ability to mobilize multi-country and multi-disciplinary teams while knowledge management and use of essential informatics tools for health research are important. The role of coordination is equally important for the efficient management of a large scale research (6).

## 2. SCOPE

Aim of this paper is to present the main strategies that have been followed in order to successfully manage the RN4CAST study, one of the largest ever multi-country nursing workforce research projects ever conducted in Europe. This case study focuses on the RN4CAST practices that have been agreed through a common consensus and collaborative work to tackle lingual, conceptual and organizational variations between the participant countries, in order to develop an effective and at the same time equal multi-country research environment. Aim is not to present the administrative and managerial perspective of this large scale research but to identify those tasks related with the scientific content and the coherence of the RN4CAST activities.

This paper is divided into two different parts, addressing two distinct perspectives as identified by the authors, addressing the successful research management of RN4CAST: the first, more extended part of this paper refers to the common consensus and research activities that have

been agreed for the successful implementation of the survey, while the second part makes a short reference to common challenges that have been faced and proactive actions to successfully tackle them. This paper is an extension of a conference presentation in the International Conference of the European Federation for Medical Informatics (MIE) 2011 in Oslo, and was subsequently published in the Studies in Health Technology and Informatics book series (IOS Press) under the title "Research management: the case of RN4CAST." (7).

## 3. RESEARCH MANAGEMENT IN THE CASE OF RN4CAST

RN4CAST, the largest nurse workforce study in Europe will add to accuracy of forecasting models and generate new approaches to more effective management of nursing resources in Europe. The project RN4CAST aims innovative forecasting methods by addressing not only volumes, but quality of nursing staff as well as quality of patient care. RN4CAST is a consortium of 15 partners in 11 European countries, collecting and analyzing data on important unmeasured factors in forecasting models including how features of hospital work environments and qualifications of the nurse workforce impact on nurse recruitment, retention, productivity and patient outcomes. Each European partner conducted surveys from over 50,000 nurses and outcomes of tens of thousands of patients (8). RN4CAST is a three year project funded under the European Commission's Seventh Framework Program FP7-HEALTH-2007-B.

### 3.1. Deciding on Common Study Protocols

Nursing job varies across European countries participating in the RN4CAST study. Despite common characteristics, there are differences in the organization of the healthcare system (9). Information about the specific characteristics of the nursing job as well the structure of the healthcare system has been collected through the aggregation of national reports that were prepared

by all participating countries. This was the basis in order to agree on common principles regarding the research methodology in all countries. Towards this direction, an international protocol was prepared to standardize data collection process. The same process was followed for the preparation of instruments for the cross-country analyses (patient and nurse survey questionnaires). Differences between the national study protocols were reported by each national research team during the consortium meetings. Extended discussion provided feasible solutions which were consequently approved by the coordinator.

### 3.2. Data Sources and data definitions

An opening discussion regarding data sources identified a limitation in the case of some countries, regarding the availability and/or quality of routinely collected data. This is a common issue that has to be tackled in all multi-country, multi-centered studies which require data collection. This issue is a natural consequent of the need for quality data and therefore the need to standardize the collected information and create a coherent universal dataset. The above limitation was tackled using an additional instrument to primarily collect patient data not readily available in routinely collected databases and this strategy allowed the timely inclusion into the analysis.

Participating hospitals of the RN4CAST study were selected through a common strategy, explicitly describing the type and size of eligible hospitals, nursing units and the type of eligible nurses. 'Nurses' have been clearly defined in all countries based on the European Union definition (directive 2005/36/EC), therefore variations in the local interpretation of what is a nurse have been overcome. The communication issues with hospital representatives and nurses, as well as the strategies to increase response rates have also been discussed. Among those strategies is the common use of a poster in all participating hospitals in-

forming nursing staff about the importance of RN4CAST in relation with their job. The survey instruments were based on a common template that all partners agreed to use. The instruments were translated into all primary languages using the backward-forward translation method and evaluated with the CVI instrument (10) by experts in every country, while no changes to the core template were accepted, since this would make the collected data non-comparable. Standard definitions of all variables were agreed, based on (i) previous knowledge (ii) well-known validated instruments (ie Practice Environment Scale of the Nursing Work, Maslach Burnout Inventory) and (iii) research team expertise (11). Finally, identifiers indicating survey variables (ie International Classification of Diseases-ICD, Diagnosis Related Groups-DRGs) were decided and commonly used by most national studies in fields addressing diseases and diagnoses.

### 3.3. Data Collection, data Analysis and dissemination strategies

The strategy followed to facilitate data collection was based on the enrollment of a field manager in each hospital as key contact with national research teams. Once data was collected by all countries, there have been gathered centrally by the research coordinator to perform preliminary analyses of the raw datasets to identify out-of-range, missing values and data entry errors, producing a cleaned version. This cleaned version was then distributed to the national research groups, on demand. Statistical analyses strategies were discussed by the consortium and a universal statistical model was finally selected to explore specific research questions within each country but also through cross-country analyses.

Since the beginning of the research project, dissemination was considered as an important priority. For the above reason there has been consensus about dissemination strategies and an agreement on citation and acknowledgement

requirements, also on national data sharing issues. The main dissemination activities of the results of the RN4CAST survey include the following

- Yearly stakeholder meetings during the project 3 year period.
- Special issue of the scientific journal "International Journal of Nursing Science" dedicated to RN4CAST
- Drafting and co-authoring a synthesis document presenting and comparing the conclusions of the data analyses across countries, with possible Europe-wide conclusions.
- An observatory book bringing together a sample of country case studies and contextual contribution of nursing in the quality of care.
- An RN4CAST International Conference (Basel, Switzerland, September 2012)

### 3.4. Challenges and proactive strategies

There are series of additional challenges that needed to be tackled since the beginning of such a large scale study and were seen as of great importance for the success of the project, with proactive thinking and timely decision making.

One of the issues to be faced during the implementation of the study include the individualized inspection and confrontation of obstacles during data collection, that was mainly due to bureaucracy in the process of permissions (external issues) or due to specific nursing job conditions within hospital departments (internal issues). Another issue that was tackled successfully has been the coherence of national procedures in European level and the specification of feasible deadlines taking into account differences across countries. Also was identified the challenge to gain information of added value for Europe, by aggregating the national survey results through a powerful data analysis model.

It is quite evident that such a large scale multi-country project with many ambitious partners actively working hard for the success of

RN4CAST requires a sensible and democratic communication and auditing strategy. This strategy should aim to support the consortium in order to work based on an agreed consensus rather than on decisions through an informal email communication. For this purpose, an "one" (coordinator/ Work Package leader) to "many" (partners) communication scheme was followed for key communication issues such as deadlines and core activities, while dissemination issues were more open in the sense of working within an online email forum.

## 4. DISCUSSION

The experience from the participation within the RN4CAST consortium indicates that the requirements for the successful management of a multi country, multi-centered large scale research crosses two different levels of challenges. Other than successful financing, mobilization and reporting to the commission, which mainly refer to the project administration, there are challenges directly addressing the content and methodology of the research itself. These challenges address the methods of the survey, data harmonization issues, data collection, multi-level data analysis modeling and finally dissemination of the results, to give added value to the individual national surveys, in EU level. Specific proactive strategies in order to tackle individual shortcomings and communication with partners are also important to safeguard the coherence of the survey and its scientific basis.

## 5. CONCLUSION

The authors of this paper stress the importance of above mentioned challenges, identifying them as key factors for the validity of the survey results and the scientific quality of large scale surveys, such as the RN4CAST survey.

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## REFERENCES

1. Russel R. Management of Research. Nature. 1947; 160(4068): 547.
2. Smith W. Research management. Science. 1970; 167(3920): 957-9.
3. Peiró S, Artells Herrero JJ. Management of research in healthcare centers. An exploration through nominal group dynamics. Gac Sanit. 2001; 15(3): 245-50.
4. De Rosa C, Rosemond ZA, Cibulas W, Gilman AP. Research management in the Great Lakes and St. Lawrence River basins: challenges and opportunities. Environ Res. 1999; 80(3): 274-9.
5. Zhang WY, Zheng J, Li YC. Practice and experience of the scientific research management. Zhonghua Nan Ke Xue. 2003; 9(8): 634-8.
6. Zikos D, Mantas J. Research management: the case of RN4CAST. Stud Health Technol Inform. 2011; 169: 985-8.
7. Merry L, Gagnon AJ, Thomas J. The research program coordinator: an example of effective management. J Prof Nurs. 2010; 26(4): 223-31.
8. The RN4CAST project official website. Online. Available from: www.rn4cast.eu
9. Needleman J, Buerhaus P, Mattke S, Stewart M, Zelevinsky K: Nurse-staffing levels and the quality of care in hospitals. N Engl J Med. 2002; 346: 1715-1722.
10. Polit D, Beck C, Owen SV: Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. Res Nurs Health. 2007; 30: 459-467.
11. Sermeus W, Aiken L, van den Hede K, Rafferty AM, Griffiths P, Moreno-Casbas M, Busse R, Tishelman C, Scott A, Bruyneel L, Brzostek T, Kinnunen J, Schubert M, Schoonhoven L, Zikos D, RN4CAST Consortium. Nurse forecasting in Europe (RN4CAST): Rationale, design and methodology. BMC Nursing 2011; 10:6.

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